California Energy Commission

STAFF REPORT

LOCALIZED HEALTH IMPACTS REPORT

Addendum 1 for Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-14-605 – Medium- and Heavy-Duty Advanced Vehicle Technology Demonstration

CALIFORNIA
ENERGY COMMISSION
Edmund G. Brown Jr., Governor

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DISCLAIMER

ADDENDUM 1

On December 19, 2014, the California Energy Commission released a competitive Grant Solicitation PON-14-605, titled "Medium- and Heavy-Duty Advanced Vehicle Technology Demonstration," under the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This grant solicitation was an offer to share the costs of the field demonstration of truck technologies that may become commercially available in California.

On March 24, 2015, the Energy Commission posted the Notice of Proposed Awards (NOPA) for PON-14-605, resulting in nine projects proposed for funding. The *Localized Health Impact Report (LHI)* was posted April 13, 2015 (CEC-600-2015-010)[1]. On June 18, 2015, the Energy Commission posted a supplemental NOPA for PON-14-605, resulting in two additional projects proposed for funding. This *LHI* uses the same approach as the original and assesses and reports on the potential localized health impacts for the two additional proposed projects with public review and comment for a 30-day period.

This chapter summarizes the projects proposed for Energy Commission funding. Table 1 provides the company, project name, project address, and environmental justice indicators. (See Appendix A.)

Table 1: Proposed Projects for Medium- And Heavy-Duty Vehicle Technology Demonstration With Environmental Justice (EJ) Indicators

Applicant	Project Name	Project Address	EJ Indicator(s)
CALSTART, Inc.	**H_2Ride Hydrogen Shuttle Bus Demonstration Project**	**Site 1: California State University, Los Angeles 5151 State University Drive, Los Angeles, California 93002**	**Poverty, Minority, and Unemployment**
		Site 2: 445 Maple Avenue, Torrance, California 90503	**Minority and Age**
City of Gardena	**City of Gardena Zero Emission Repower Bus Demonstration Project**	**13999 South Western Avenue, Gardena, California 90249**	**Minority, Age, and Unemployment**

Source: California Energy Commission staff analysis

1 Brecht, Patrick. 2015. *Localized Health Impacts Report.* California Energy Commission, Fuels and Transportation Division. Publication Number: CEC-600-2015-010.

CALSTART, Incorporated

Project Name: H_2Ride Hydrogen Shuttle Bus Demonstration Project

The project will build and demonstrate four high-performance hydrogen fuel cell plug-in shuttle buses that will provide pollution-free, zero emissions shuttle service with extended travel ranges of up to 125 or 200 miles in disadvantaged communities in eastern Los Angeles and the Coachella Valley.

The project includes two central station locations along with demonstration sites that are bus routes where the proposed shuttle buses would be routed during the demonstration.

Site 1

The central station is located at 5151 State University Drive, Los Angeles, California 93002, and the demonstration route is near the California State University, Los Angeles (CSULA), campus, and located within public, commercial, and residential uses. Various homes are near the proposed route.

The proposed CSULA central station site is within one mile of 12 schools, 2 day care centers, and 3 medical offices or hospitals.

Site 2

The central station is located at 455 Maple Avenue, Torrance, California, 90503, and is the SunLine demonstration, which includes various routes within the Coachella Valley. The proposed routes are in multiple land-use and/or coning categories. Residential, commercial, and industrial uses are located next to the proposed route.

The proposed SunLine central station location is within one mile of 15 schools, 5 day care centers, and 10 medical offices or hospitals.

Project-Generated Emissions

Hydrogen combustion in the proposed vehicles would result in zero on-road emissions. Zero emissions are a benefit of the project, which is located in areas with moderate to high air quality pollution. Both projects will be located in nonattainment zones for ozone, PM 2.5 and PM 10.

Project Health Impacts

The project will replace diesel or compressed natural gas fueled vehicles in areas with significant air pollution issues, with zero-emission, hydrogen-powered shuttle vehicles. The project will result in reductions of nitrogen oxide (NO_x), hydrocarbons, carbon monoxide, and all other criteria air pollutant and toxic air containment emissions. The project would support environmental benefits, including reductions in greenhouse gas emissions, avoidance of a total of 54,160 gallons of diesels consumption, and critical air quality emission reductions in disadvantaged communities. Reductions include a total of 1,096 lb NO_x, 85,671 lb reactive organic gases (ROG)/volatile organic compounds (VOC), and 54.8 lb particulate matter.

City of Gardena

Project Name: City of Gardena Zero-Emission Repower Bus Demonstration Project

The project will remanufacture gasoline hybrid buses into refurbished buses with a zero-emission propulsion system to make them pure-battery electric-propelled buses in Riverside, California, for operations in Gardena. The bus remanufacture will be accomplished in Riverside with operation by Gardena Municipal Bus Lines out of the facility located at 13999 South Western Avenue, Gardena, California 90249.

The proposed central station location is within one mile of 14 schools, 10 day care centers, and 1 medical office or hospital.

Project-Generated Emissions

The project is not expected to have anything but negligible impact on air emissions (criteria and toxic) directly associated with project operations, including, but not limited to 1) transport or material to project site at each organization as required for operations and production, 2) fueling of the vehicles with electricity from facility grid, or 3) any potential increase to traffic. The project is located in nonattainment zones for ozone, PM 2.5 and PM 10.

Project Health Impacts

No appreciable emissions from the "zero-emission remanufactured vehicle" are anticipated, and staff expects that there will be no potential localized health impacts because in operation no criteria pollutants and toxic air contaminants are emitted in the localized air shed. The effect on ambient air quality levels should not affect local community health adversely. The five buses for the project are replacing five gasoline-electric hybrid buses. On average, each of the gasoline-hybrids consumes 9,142 gallons annually. The five repowered buses will eliminate 45,710 gallons of gasoline and reduce carbon dioxide emissions by 106.48 metric tons per year, along with the criteria emissions attributed to the gasoline operations.

Approach

The *Localized Health Impact Report* (*LHI Report*) assessment method in Appendix A assesses communities potentially impacted by air pollution and possibly benefitted by the medium- and heavy-duty advanced vehicle technology demonstration projects. The California Air Resources Board's (ARB) *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution for Assembly Bill (AB) 32 Assessments* is also used to integrate data to identify low-income communities that are highly impacted by air pollution.[2] Other resources used in this assessment are the *California Infrastructure State Implementation Plans*, [3] which contain publicly

2 California Air Resources Board, *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution, 2010* (Sacramento, California).

3 http://www.arb.ca.gov/planning/sip/sip.htm.

noticed air quality attainment plans, and the *Green Book Nonattainment Areas for Criteria Pollutants*[4].

For this *LHI Report*, the Energy Commission interprets "permits" to connote discretionary and conditional use permits because they require a review of potential impacts to a community and the environment before issuance. Since ministerial-level permits, such as building permits, do not assess public health-related pollutants, the Energy Commission staff does not assess projects requiring only ministerial level permits in this report.

The cities where the projects will be located are all in nonattainment zones for ozone, PM[5] 2.5, and PM 10. Table 1 shows the EJ indicators for the two projects in three cities, that is, minority populations, low incomes, and highly sensitive groups based on age (individuals younger than 5 years of age and older than 65 years of age). Table 2 shows the demographics. Gardena, Los Angeles, and Torrance are classified high-risk communities, according to the Environmental Justice Screening Method (EJSM).

Staff collected information about predicted emissions from the project proposals. Activities conducted are not expected to have any negligible impact on emissions, including, but not limited to, transport of fuel or material to project sites for production or any potential increase in traffic. Demonstrations proposed will enhance market acceptance of advanced vehicle technologies that will lead to vehicle production and commercialization, reduced greenhouse gas emissions, and reduced petroleum use.

Activities proposed in these projects are identical duties to diesel vehicles already routinely used. Hence, there will be a net improvement in emissions at each site, as the diesel vehicles will be replaced with alternative fuel vehicles, thereby benefitting affected communities.

Summary

If funded, the medium- and heavy-duty advanced vehicle technology demonstrations would result in developing cutting-edge technologies that achieve both energy and climate change goals. The projects will increase the widespread use of alternative fuel vehicles through education, demonstration, testing, evaluation, and outreach. As more alternative fuel vehicles enter the market and begin to displace gasoline and diesel vehicles, tailpipe pollutants will decrease significantly, especially in critical areas of the state. Developing the advanced vehicle technologies will lead to sustainable methods of moving freight, goods, and people.

The anticipated impacts to the community where the projects would be located are positive in terms of air quality and anticipated greenhouse gas reductions.

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4 http://www.epa.gov/oaqps001/greenbk.

5 "Particulate matter" is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled, and a chief component of exhaust emissions from heavy-duty diesel engines.

As indicated in Table 1, with further detail in Table 2, Gardena, Los Angeles, and Torrance are high-risk communities, as identified in Appendix A. The anticipated benefit from the proposed projects for the people in these communities, especially the disadvantaged communities, is highly likely, if not certain, to be positive.

Table 2: Environmental Justice (EJ) Indicators Compared With California

Yellow highlighted areas indicate numbers (percentages) that meet the definition for EJ indicators.

	Number of EJ Indicators	Below Poverty Level (2009-2013)	Black Persons (2010)	American Indian and/or Alaska Native (2010)	Asian and/or Pacific Islander (2010)	Persons of Hispanic or Latino Origin (2010)	Persons Under 5 Years of Age (2010)	Persons Over 65 Years of Age (2010)	Unemployment Rate (May 2015)
California		**15.9%**	**6.2%**	**1.0%**	**13.0%**	**37.6%**	**6.8%**	**11.4%**	**6.4%**
		>15.9%	**>30%**	**>30%**	**>30%**	**>30%**	**>8.16%**	**>13.8%**	**>6.4%**
Gardena	3	15.5%	24.4	0.6%	26.2%	37.7%	6.3%	14.1%	7.3%
Los Angeles	3	22.0%	9.6%	0.7%	11.3%	48.5%	6.6%	10.5%	7.8%
Torrance	2	7.4%	2.7%	0.4%	34.5%	16.1%	5.2%	14.9%	5.1%

Sources: Unemployment information from the State of California, Employee Development Department (EDD) Labor Market Information Division: http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=133 and Age / ethnicity demographics, U.S. Department of Census: http://quickfacts.census.gov

APPENDIX A:
Localized Health Impact Report Assessment Method

Based on the California Energy Commission's interpretation of the *California ARB* AQIP *Guidelines*, this *LHI Report* assesses the potential impacts to communities as a result of the projects proposed by the ARFVTP. This report is prepared under the *California ARB AQIP Guidelines, California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1 (CCR § 2343)*:

"(6) Localized health impacts must be considered when selecting projects for funding. The funding agency must consider environmental justice consistent with state law and complete the following:

> (A) For each fiscal year, the funding agency must publish a staff report for review and comment by the public at least 30 calendar days prior to approval of projects. The report must analyze the aggregate locations of the funded projects, analyze the impacts in communities with the most significant exposure to air contaminants or localized air contaminants, or both, including, but not limited to, communities of minority populations or low-income populations, and identify agency outreach to community groups and other affected stakeholders.
>
> (B) Projects must be selected and approved for funding in a publicly noticed meeting."

This *LHI Report* is not intended to be a detailed environmental health impact analysis of proposed projects nor is it intended to substitute for the environmental review conducted during the California Environmental Quality Act (CEQA) review. This *LHI Report* includes staff application of the Environmental Justice Screening Method (EJSM) to identify projects located in areas with social vulnerability indicators and the greatest exposure to air pollution and associated health risks.[6]

The EJSM was developed to identify low-income communities highly affected by air pollution for assessing the impacts of climate change regulations, specifically Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006. The EJSM integrates data on (i.) exposure to air pollution, (ii.) cancer risk, (iii.) ozone concentration, (iv.) frequency of high ozone days, (v.) race/ethnicity, (vi.) poverty level, (vii.) home ownership, (viii.) median household value, (ix.) educational attainment, and (x.) sensitive populations (populations under 5 years of age or over 65 years of age).

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6 California Air Resources Board (ARB). *Air Pollution and Environmental Justice, Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability Into Regulatory Decision-Making, 2010.* (Sacramento, California) Contract authors: Manuel Pastor Jr., Ph.D., Rachel Morello-Frosch, Ph.D., and James Sadd, Ph.D.

To determine high risk communities, environmental justice (EJ) indicators for locations of the medium- and heavy-duty advanced vehicle technology demonstrations are compared to data from the U.S. Census Bureau or other public agency. Staff identifies high-risk communities by using a two-part standard. For a community to be considered high- risk, for this assessment, it must meet both Parts 1 and 2 of this standard.

Part 1:

- Communities located in nonattainment air basins for ozone, PM 10 or PM 2.5

Part 2:

- Communities having more than one of the following EJ indicators: (1) minority, (2) poverty, (3) unemployment and/or (4) high percentage of population under 5 years of age and over 65 years of age. The EJ indicators follow:

    - A minority subset represents more than 30 percent of a given city's population. (MINORITY)

    - A city's poverty level exceeds California's poverty level. (POVERTY)

    - A city's unemployment rate exceeds California's unemployment rate. (UNEMPLOYMENT)

    - The percentage of people living in that city are younger than 5 years of age or older than 65 years of age is 20 percent higher than the average percentage of persons under 5 years of age or over 65 years of age for all of California. (SENSITIVE POPULATIONS – AGE)